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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,620	11/13/2003	Ryuji Nishikawa	YKI-0139	2386
23413	7590	03/23/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			SANEI, HANA ASMAT	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/713,620

Applicant(s)

NISHIKAWA, RYUJI

Examiner

Hana A. Sanei

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4 and 8-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 4 and 8-27 is/are rejected.
- 7) ☐ Claim(s) 21 and 24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Amendment***

The Amendment, filed on 1/3/06, has been entered and acknowledged by the Examiner.

Cancellation of claims 1-3,5-7 has been entered.

Claims 4, 8-27 are pending in the instant application

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Objections***

Claims 21, 24, 27 are objected to under 37 CFR 1.75 as being a substantial duplicate of Claim 25. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 25-27 are objected to because of the following informalities: The claim lacks antecedent basis for the phrase "the lower organic layer". For purposes of examination, Examiner will replace the phrase "the lower organic layer" with "the hole injection layer." Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 4, 8-9, 12-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urabe et al (US 6614174 B1) in view of Fukuda (US 6541130 B2).

Regarding Claim 9, Urabe teaches an organic electroluminescence panel (see at least Fig. 4C) in which a plurality of organic electroluminescence elements (refer to Fig. 3) are formed above, each organic electroluminescence element (10) including at least a hole injection layer (101) and an organic emissive layer (103) between a lower individual electrode (A, anode) which is individually patterned for each pixel and an upper electrode (K, cathode), the organic electroluminescence panel, comprising: an edge covering insulating layer (portion of insulating film, 15 above A) for covering peripheral end portions of the lower individual electrode and a region from the peripheral end portions to an end portion of an adjacent lower individual electrode (refer to Fig. 3), and a mask supporting insulating layer (portion of insulating film, 15 below contour of 5, not including the claimed "edge covering insulating layer" portion, taken in conjunction with 6), which has a greater thickness than the edge covering insulating layer; and the organic emissive layer is formed between the upper electrode and the hole injection layer and terminates on an outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on an inner region with respect to a region where the mask supporting insulating layer is formed (refer to Fig. 1, 10), and the organic emissive layer is individually patterned for

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each pixel (R,G,B pixellated, Fig. 3). Urabe fails to teach that the hole injection layer is formed covering the lower individual electrode, the edge covering insulating layer, and the mask supporting insulating layer.

In the same field of endeavor, Fukuda teaches a hole injection layer that is continuous (common layer, 41; see at least Fig. 4), while maintaining that the organic emissive regions are pixellated. Hence, the common hole injection layer of Fukuda will cover the lower individual electrode, the edge covering insulating layer, and the mask supporting insulating layer of Urabe. Fukuda teaches this configuration for the purpose of defining the optimum position of the light emitting layers for obtaining each of the colors of emitted light (Col. 5, lines 45-52) thereby providing improved light emission efficiency (Col. 4, lines 12-18). It should be noted that the continuous functionality of the common hole transport layer is complementary to the common hole injection layer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the hole injection layer, as disclosed by Fukuda, in the device of Urabe in order to improve light emission efficiency.

Regarding Claim 4, Urabe teaches that the edge covering insulating layer and the mask supporting insulating layer are formed from a single insulating layer (6 & 15) in respective predetermined patterns having different thicknesses; and the edge covering insulating layer and the upper insulating layer are formed of the same insulating layer (SiO<sub>2</sub>, Col. 7, lines 58-64; Col. 6, lines 18-34). The applicant is claiming the product of a single insulating layer including a method (i.e. a process) of patterning via multi-phase exposure or gray-tone exposure, consequently, Claim 4 is considered a "product-by-

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process" claim. In spite of the fact that the product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself that must be new and not obvious (see MPEP 2113). Accordingly, the method of multi-phase exposure or gray-tone exposure is not germane to the issue of patentability of the

Regarding Claim 8, Urabe teaches that the edge covering insulating layer and the mask supporting insulating layer are formed from a single insulating layer (6 & 15) in respective predetermined patterns having different thicknesses; and the edge covering insulating layer and the upper insulating layer are formed of the same insulating layer ( $\text{SiO}_2$ , Col. 7, lines 58-64; Col. 6, lines 18-34). The applicant is claiming the product of a single insulating layer including a method (i.e. a process) of patterning, consequently, Claim 8 is considered a "product-by-process" claim. In spite of the fact that the product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself that must be new and not obvious (see MPEP 2113). Accordingly, the method of patterning is not germane to the issue of patentability of the device/product itself and has not been given any patentable weight.

Regarding Claim 12, Urabe teaches that the edge covering insulating layer and the mask supporting insulating layer are formed from a single insulating layer (6 & 15) in respective predetermined patterns having different thicknesses; and the edge covering

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insulating layer and the upper insulating layer are formed of the same insulating layer ( $\text{SiO}_2$ , Col. 7, lines 58-64; Col. 6, lines 18-34)). The applicant is claiming the product of a single insulating layer including a method (i.e. a process) of patterning, consequently, Claim 12 is considered a "product-by-process" claim. In spite of the fact that the product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself that must be new and not obvious (see MPEP 2113). Accordingly, the method of patterning is not germane to the issue of patentability of the device/product itself and has not been given any patentable weight.

Regarding Claims 13, 17 Urabe teaches an organic electroluminescence panel (see at least Fig. 4C) in which a plurality of organic electroluminescence elements (refer to Fig. 3) are formed above, each organic electroluminescence element (10) including at least an organic layer (10) between including an organic emissive material (103) between a lower individual electrode (A, anode) which is individually patterned for each pixel and an upper electrode (K, cathode), the organic electroluminescence panel, comprising: an edge covering insulating layer (portion of insulating film, 15 above A) for covering peripheral end portions of the lower individual electrode and a region from the peripheral end portions to an end portion of an adjacent lower individual electrode (refer to Fig. 3), and a mask supporting insulating layer (portion of insulating film, 15 below contour of 5, not including the claimed "edge covering insulating layer" portion, taken in conjunction with 6), which has a greater thickness than the edge covering insulating

layer (Fig. 4C), the organic layer has a multilayer structure (101-103); of the organic layers, a lower organic layer that is a hole injection layer (101) is formed; the organic layer individually patterned for each pixel is at least an organic emissive layer (Alq, 103); and the organic layer (10) terminates on an outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on an inner region with respect to a region where the mask supporting insulating layer is formed (refer to Fig. 1, 10; Fig. 4C) and the organic layer is individually patterned for each pixel (Fig. 3). Urabe fails to teach that the hole injection layer is formed common to a plurality of pixels and covering the mask supporting insulating layer.

In the same field of endeavor, Fukuda teaches a hole injection layer that is common to a plurality of pixels (41; see at least Fig. 4). Hence, the continuous hole injection layer of Fukuda will cover the mask supporting insulating layer of Urabe. Fukuda teaches this configuration for the purpose of defining the optimum position of the light emitting layers for obtaining each of the colors of emitted light (Col. 5, lines 45-52) thereby providing improved light emission efficiency (Col. 4, lines 12-18). It should be noted that the continuous functionality of the common hole transport layer is complementary to the common hole injection layer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the hole injection layer, as disclosed by Fukuda, in the device of Urabe in order to improve light emission efficiency.

Regarding Claims 14, 18 Urabe teaches an organic electroluminescence panel (see at least Fig. 4C) in which a plurality of organic electroluminescence elements (refer to Fig. 3) are formed above, each organic electroluminescence element (10) including at least an organic layer (10) between including an organic emissive material (103) between a lower individual electrode (A, anode) which is individually patterned for each pixel and an upper electrode (K, cathode), the organic electroluminescence panel, comprising: an edge covering insulating layer (portion of insulating film, 15 above A) for covering peripheral end portions of the lower individual electrode and a region from the peripheral end portions to an end portion of an adjacent lower individual electrode (refer to Fig. 3), and an upper insulating layer (portion of insulating film, 15 below contour of 5, not including the claimed "edge covering insulating layer" portion, taken in conjunction with 6), which has a greater thickness than the edge covering insulating layer (Fig. 4C), the organic layer has a multilayer structure (101-103); of the organic layers, a lower organic layer that is a hole injection layer (101) is formed; the organic layer individually patterned for each pixel is at least an organic emissive layer (Alq, 103); and the organic layer (10) terminates on an outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on an inner region with respect to a region where the upper insulating layer is formed (refer to Fig. 1, 10; Fig. 4C) and the organic layer is individually patterned for each pixel (Fig. 3). Urabe fails to teach that the hole injection layer is formed common to a plurality of pixels and covering the upper insulating layer.

In the same field of endeavor, Fukuda teaches a hole injection layer that is common to a plurality of pixels (41; see at least Fig. 4). Hence, the continuous hole injection layer of Fukuda will cover the upper insulating layer of Urabe. Fukuda teaches this configuration for the purpose of defining the optimum position of the light emitting layers for obtaining each of the colors of emitted light (Col. 5, lines 45-52) thereby providing improved light emission efficiency (Col. 4, lines 12-18). It should be noted that the continuous functionality of the common hole transport layer is complementary to the common hole injection layer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the hole injection layer, as disclosed by Fukuda, in the device of Urabe in order to improve light emission efficiency.

Regarding Claim 15, Urabe teaches that a charge transport layer (102) is formed between the hole injection layer (101) and the organic emissive layer (103) and the charge transport layer terminates on the outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on the inner region with respect to a region where the mask supporting insulating layer is formed (Fig. 1, 10), and the charge transport layer is individually patterned for each pixel (see at least Fig. 3 & Fig. 4C).

Regarding Claim 16, Urabe teaches that a charge transport layer (102) is formed between the hole injection layer (101) and the organic emissive layer (103) and the charge transport layer terminates on the outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on

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the inner region with respect to a region where the upper insulating layer is formed (Fig. 1, 10), and the charge transport layer is individually patterned for each pixel (see at least Fig. 3 & Fig. 4C).

Regarding Claims 19, 22, 25, Urabe teaches that the hole injection layer is formed from a material having relatively high adhesion to lower layer than the organic emissive layer (Col. 8, lines 23-29).

Regarding Claims 20, 23, 26, Urabe teaches that the thickness of the hole injection layer is thinner than a thickness of the organic emissive layer (Col. 8, lines 52-56).

Regarding Claims 21, 24, 27, the claim is rejected over the same reasons stated in the rejection of Claims 22 & 25.

2. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urabe et al (US 6614174 B1) in view of Fukuda (US 6541130 B2) in further view of Huang et al (US 2002/0013451 A1).

Regarding Claim 10, Urabe-Fukuda teaches the invention set forth above (see rejection in Claim 9 above) and further teaches that organic emissive layer (103, Fig. 4C of '174) has a total thickness of 10nm or greater (Col. 8, lines 52-56). Urabe-Fukuda fails to teach a hole injection layer that falls within the claimed thickness. In the same field of endeavor, Huang teaches a hole injection layer that has a thickness which is smaller than 10 nm ([0034]). Huang teaches this for the purpose of improving the facilitation of holes from the anode into the organic films ([0034]). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to

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modify the hole injection layer, as disclosed by Huang, in the device of Urabe-Fukuda in order to/for providing of improve the facilitation of holes from the anode into the organic films.

Regarding Claim 11, Urabe-Fukuda-Huang teaches that a charge transport layer (102, Fig. 4C of '174) is formed between the hole injection layer (101) and the organic emissive layer (103) and the charge transport layer terminates on the outer region with respect to the boundary between the edge covering insulating layer and the lower individual electrode, and on the inner region with respect to a region where the mask supporting insulating layer (Fig. 1, 10) is formed, and the charge transport layer is individually patterned for each pixel (see at least Fig. 3 & Fig. 4C of '174).

#### ***Response to Arguments***

Applicant's argument filed on 1/3/06 have been fully considered but they are not necessary.

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Other Cited Art***

Mori et al (US 2001/0013756 A1) teaches a hole injection layer formed of MTDATA that is used to improve adhesion of organic layers to anode.

#### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571) 272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner  
Hana A. Sanei



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